His concluding paper (*Ibid.*, xxvi. p. 273) deals with cholera, plague, and epidemic cerebro-spinal meningitis. Contrary to the views of Pettenkofer and his school, who hold that air is the only medium for disseminating cholera, and that water and moisture have no important part in the process, his experiments lead to the conclusion that the cholera organism retains its virulence only so long as it remains moist, and dies quickly on drying, and the more so if the process is hastened. In his experiments he employed dust impregnated with bouillon cultures, and sterilized feces, which he infected with the organism and then mixed partly with fine sand and partly with brick-dust. He places the cholera organism in the class of bacteria which show least resistance to drying, and concludes that dissemination by air is most highly improbable. His work on the bacillus of plague agrees in results with that of Kitasato and of Wilm. It does not withstand drying, but lives a long time in the moist condition. It remains active fairly long when dried on cloth, perhaps because then complete drying requires a long time, and thus may be explained the danger of infection which is recognized to exist in infected clothing. His experiments with the diplococcus of epidemic cerebro-spinal meningitis confirm the conclusions of Jäger as to its resistance to drying. Jäger found the organism in an active condition in a handkerchief six weeks after use by a patient sick with the disease. Germano shows that it belongs to the class of bacteria which show the greatest possible resistance to drying, whether the process is quick or slow or assisted by the action of sulphuric acid, and concludes that it may without difficulty get into the air in the form of dust, and thus spread the infection.

DR. MAX NEISSER (*Ibid.*, xxvii. p. 175), working in the same line with an apparatus of his own design, which establishes a constant aspiration current of dusty infected air, disagrees with Germano in his conclusions that the pneumococcus withstands drying, inasmuch as while mice inoculated as controls with infected dust died from the infection without exception, negative results were obtained in every one of twenty-four inoculations with dust that had been disseminated through the apparatus in the current of air. His experiments with various organisms led him to conclude that dust-infection is impossible with the organisms of diphtheria, typhoid fever, plague, cholera, and pneumonia, but possible with staphylococcus pyogenes aureus, B. pyocyaneus, B. anthracis, B. tuberculosis, and meningococcus.

The Typhoid Bacillus and Buttermilk.—DRS. EUGENE FRAENKEL and J. KISTER (*Münchener medicinische Wochenschrift*, February 18, 1898), having reason to believe that the unusual amount of typhoid fever at Hamburg during the summer of 1897 was due in part to infected buttermilk, undertook the study of the question whether the *B. typhosus* can exist in that fluid, concerning which point there is more or less of conflicting testimony. Obtaining some samples, they first investigated the number and identity of the contained bacteria, and learned that while the number varied widely, the species were always about the same. Finding no pathogenic organisms, they sterilized specimens in test-tubes a half hour a day for three days, then planted the typhoid bacillus in them and kept them at different temperatures: on ice, at 22° C. and 37° C. Loops were taken from each from time to time and planted, and all yielded positive results. The specimen kept at roomtemperature was under observation nine days; the others were not examined after the third. Then, specimens of fresh buttermilk containing all its bacteria were planted and kept under the same conditions, and from them the same results were obtained. Yet there was this difference, that there was always a diminution in the number of the pathogenic organisms, and this was more marked, and sometimes very rapid, with increasing temperatures.

How the Color of Drinking-water Due to Humin Substances may be Influenced by Iron Compounds.—W. SPRING (*Chemisches Centralblatt*, 1898, i. 410) advances as a result of some observations on the color of drinking-waters an explanation of the influence of iron salts. Mixing brown peaty water with dilute solution of ferric salts, it will be noticed that the color is at first dark, but under the influence of light becomes less and less so, and meanwhile a precipitate settles out. The humin substances are oxidized and unite to form insoluble compounds with metallic oxides. In this process the ferric are reduced to ferrous compounds having insignificant color, but the latter are soon again oxidized to ferric, and then resume the separation of the organic coloring. He likens the function of iron in the purification of water to that of the hæmoglobin of the blood.

PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF

W. T. COUNCILMAN, M.D.,

SHATTUCK PROFESSOR OF PATHOLOGICAL ANATOMY, HARVARD UNIVERSITY,

AND

F. B. MALLORY, M.D.,

ASSISTANT PROFESSOR OF PATHOLOGICAL ANATOMY, HARVARD UNIVERSITY.

Cancer of Œsophagus with Involvement of Heart and Lung.—BUREAU (*Bull. Soc. Anat. de Paris*) reports the above condition in a man, fifty years of age, emaciated and cachectic, with pain on swallowing, and vomiting, which only once showed the presence of blood. Later a pleurisy developed and 500 c.c. of fluid were withdrawn. Sputum became fetid. Tachycardia was observed, the pulse on one occasion being 160. Post-mortem examination showed a constricting cancerous growth of the œsophagus with ulceration and perforation into the middle lobe of the right lung. The œsophagus was adherent to the left auricle of the heart with projection of the growth into this cavity, and there was a formation of cancerous nodules the size of a pea on the endocardium. The muscular fibres of the heart were atrophied and also infiltrated with cancer cells. The left inferior pulmonary vein was compressed by the growth, as was also the right pneumogastric nerve. Histological examination of the growth showed it to be an epidermoid cancer.

The Pathology of Tabes Dorsalis.—In an exhaustive monograph on the pathology of the spinal cord changes of locomotor ataxia, REDLICH presents